

SPECTRAL PHASE MEASUREMENT USING PHASE-DIVERSE COHERENT
OPTICAL SPECTRUM ANALYZER

ABSTRACT OF THE DISCLOSURE

5 Embodiments in accordance with the invention provide an optical spectrum analyzer. The optical spectrum analyzer includes a receiver for receiving an optical local oscillator signal and an unknown optical signal. The receiver outputs three or more phase-diverse heterodyne signals. The phase-diverse heterodyne signals are coupled to a phase quadrature generator. The phase quadrature generator produces a first and second phase

10 quadrature signals that are ninety degrees out of phase with respect to each other. The first and second phase quadrature signals are coupled to a complex signal generator. The complex signal generator produces a complex signal having a positive and negative image. A measurement processing unit determines the phase of the unknown optical signal from the relative difference of the phase of the positive and negative image of the complex

15 signal.